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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/421,434	10/19/1999	TAKA AKI ASADA	36856.00226	4142

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JOSEPH R KEATING ESQ
KEATING & BENNETT, LLP
10400 EATON PLACE, SUITE 312
FAIRFAX, VA 22030

EXAMINER

TUGBANG, ANTHONY D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 12/31/2002

17

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/421,434

Applicant(s)

ASADA, TAKAAKI

Examiner

Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The applicant's amendment filed 9/11/02 (Paper No. 16) has been fully considered and made of record.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification fails to provide antecedent basis for the limitations of "completing manufacturing of the piezoelectric transformer apparatus", as filed originally ~~filed~~ in Claim 14.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1 and 3-14 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In Claim 1, the recitation of "completing the manufacture of the piezoelectric transformer apparatus" (line 12), now that the transformer apparatus begins its manufacture with a "piezoelectric member having an actuator and the generator provided in the piezoelectric

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member” (lines 3-5), is new matter. The specification, as originally filed, does not provide support for completing the manufacture of the piezoelectric transformer with the transformer including a piezoelectric member having the actuator and the generator provided in the piezoelectric member. The specification does not even make any stipulation as to what state the piezoelectric transformer is in when it is considered to be completed.

The same problems that occur above in Claim 1 similarly occur in Claim 14.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3 and 10-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Saitoh et al 5,295,487.

Saitoh discloses the claimed manufacturing and screening method of a piezoelectric transformer apparatus comprising: beginning manufacturing of the transformer apparatus (shown in Fig. 1) by dicing or bonding (see Example 1); connecting a load impedance (circuit 24) to a generator (pulser 22 shown in Fig. 3); subsequently identifying whether the transformer apparatus has a mechanical defect by testing or measuring each transformer apparatus for *pulse echoes of frequencies, duty ratios, and pulse widths*, to specifically determine defective transformer apparatuses (see col. 20, line 39-56) by applying a stress signal of at least 100 V; and completing manufacturing of the transformer apparatus by assembling each of the transformer

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apparatuses in a medical diagnosing apparatus (see col. 21, lines 35-38 and col. 1, lines 15+), which meets all of the limitations of the claimed method. The transformer apparatus (in Fig. 1) includes a piezoelectric member 1 in which the actuator is broadly read as the portion of the piezoelectric member 1 that is covered by electrodes 2, 3 and the generator is broadly read as the portion of the piezoelectric member 1 that is not covered by the electrodes 2, 3 or is at least exposed to the atmosphere.

Regarding Claim 10, the piezoelectric transformer apparatus is inherently cooled under normal atmospheric conditions.

Regarding Claim 11, the piezoelectric transformer apparatus is broadly read as a Rosen-type piezoelectric transformer apparatus.

Regarding Claims 12 and 13, Saitoh shows in Figure 2 that the piezoelectric transformer includes at least one piezoelectric plate 1 and can also constitute a plurality of piezoelectric plates (see col. 5, lines 33+).

Regarding Claim 17, the testing includes a vibrational level of the transformer apparatus cause by the stress signal of voltage within a range of a vibration level during actual use or actual operation (see col. 20, lines 39-50).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1 and 3-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the IEEE Publication to Kawamura et al, referred to hereinafter as Kawamura, in view of Allen et al 5,701,645.

Kawamura discloses a method of screening a piezoelectric transformer apparatus comprising: testing the transformer apparatus by connecting a load impedance to the generator (see Figs. 3 and 5); applying a stress signal to the generator to vibrate the transformer apparatus (shown in Fig. 7); and identifying whether the transformer apparatus has mechanical defects of mechanical strain (see Abstract). The transformer apparatus (in Fig. 2) includes a piezoelectric member in which the actuator is broadly read as the portion of the piezoelectric member that is covered by the main electrode and the generator is broadly read as the portion of the piezoelectric member that is not covered by the main electrode or is at least exposed to the atmosphere.

Regarding Claims 3 and 17, the vibration levels shown by Kawamura in Figures 6, 7 and 9 are considered to be within a range of vibration levels, i.e. fatigue limit of strain, during actual use or operation of the transformer apparatus.

Regarding Claims 6 and 20, Kawamura further teaches the transformer apparatus including, or being connected to, a resistance element of an electric-*resistance* strain gage (shown in Fig. 4).

Regarding Claim 10, the transformer apparatus is considered to be inherently cooled since, after screening, the transformer apparatus is placed in normal atmospheric conditions.

Kawamura is silent as to the steps of beginning manufacturing of the transformer apparatus and completing manufacturing of the transformer apparatus.

Allen teaches a piezoelectric transformer manufacturing process in which the process begins with manufacturing multiple transformer apparatuses (shown in Fig. 1) and ends with completing the transformer apparatuses by either packaging each transformer apparatus individually or incorporating each transformer apparatus into other electronic assemblies (see col. 4, lines 33-35). *In between* the steps of beginning and completion of the transformer apparatuses, Allen teaches testing the transformer apparatuses to identify any defective transformer apparatus and cull, or remove, them from the non-defective transformer apparatuses (see col. 4, lines 47-50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have improved the screening method of Kawamura by including the piezoelectric transformer manufacturing process of Allen, to positively manufacture multiple piezoelectric transformer apparatuses at one time and identify and remove any defective transformer apparatuses from the manufacturing process. The overall manufacturing process ultimately provides a means to remove all of the defective piezoelectric transformer apparatuses.

With respect to Claims 4, 5, 7, 9, 11, 18 and 19, it would have been an obvious matter of *engineering design choice* to choose any desired relative values of load impedance, type of stress signal, percentage of duty ratio, or type of piezoelectric transformer. Applicant has not disclosed that the load impedance being not less than 10 X the output impedance, sinusoidal continuous wave stress signal, duty ratio of burst wave being not more than 10%, and a Rosen-type piezoelectric transformer, are claimed features which solve any stated problem or are for any particular purpose, and it appears that the invention would perform equally well with the relative

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values of load impedance, stress signal, percentage of duty ratio, and type of piezoelectric transformer taught by either Kawamura et al or Allen et al.

Response to Arguments

9. Applicant's arguments filed 9/11/02 (Paper No. 16) have been fully considered but they are not persuasive.

In regards to the merits of Saitoh, applicant contends that Saitoh does not teach testing of the piezoelectric transformer apparatus after manufacturing of the transformer apparatus is completed.

The examiner most respectfully disagrees. The examiner maintains the position that manufacture of the piezoelectric transformer apparatus is not completed until they are assembled into the medical diagnosing apparatus. The testing (discussed at col. 20, lines 44-50) is done before this. Furthermore, what does the applicant consider to be “completing the manufacturer of the piezoelectric transformer apparatus”? Although, this limitation was part of original Claim 14, the specification does not define what stage the piezoelectric transformer apparatus is considered to be completed. The examiner's position is that the limitations of “completing the manufacture of the piezoelectric apparatus” is a very broad and relative recitation and that the piezoelectric apparatus of Saitoh is not completed until the apparatus is finally assembled into a medical diagnosing apparatus .

In regards to the merits of Allen, the applicant again reiterates that testing does not occur after completing the manufacturing of the piezoelectric transformer apparatus. Again, the examiner's position with Allen is that manufacturing of the piezoelectric transformer apparatus is

not completed until each is assembled into other electronic assemblies, such as a radio, and that testing occurs before assembling the piezoelectric transformer apparatus into the other electronic devices (see col. 4, lines 33-35).

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

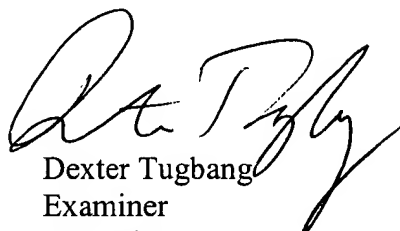
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dexter Tugbang whose telephone number is 703-308-7599. The examiner can normally be reached on Monday - Friday 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3590 for regular communications and 703-305-3588 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.



Dexter Tugbang
Examiner
Art Unit 3729

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December 30, 2002